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10/571,069	12/07/2006	Hidemi Kurihara	0230-0245PUS1	2459

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EXAMINER	
BORGHEST, CHRISTINA M	

ART UNIT	PAPER NUMBER
1649	

NOTIFICATION DATE	DELIVERY MODE
04/05/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/571,069	KURIHARA ET AL.	
	Examiner	Art Unit	
	Christina Borgeest	1649	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 November 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *10-13 and 15-30* is/are pending in the application.

4a) Of the above claim(s) *1-9, 18-29* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10-13,15,16 and 30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/21/09; 2/3/2010*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The amendment filed 24 November 2009 is acknowledged. Claims 1-13, 15, 16, and 18-30 are pending in the instant application. Claim is 10 is amended; claim 17 is cancelled and claim 14 is newly cancelled; claims 1-9 and 18-29 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Claims 10-13, 15, 16 and 30 are under examination in the instant Office action.

Rejections Withdrawn

Claim Rejections - 35 USC § 112, second paragraph

The rejection of claim 10-16 and 30 as being indefinite is withdrawn in response to Applicants' amendment of independent claim 10 to delete the article "a" preceding "brain-derived neurotrophic factor" and "nerve growth factor."

The rejection of claims 10 and 30 as being indefinite is withdrawn in response to Applicants' amendment of independent claim 10 to incorporate what the therapeutically effective amount achieves.

The rejection of claim 30 as being indefinite for insufficient antecedent basis is withdrawn in response to Applicants' amendment of claim 10 to recite "per tooth or

defect of furcation", thus there is now sufficient antecedent basis for the recitation in claim 30.

Claim Rejections - 35 USC § 112, first paragraph – Enablement

The rejection of claim 14 under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement is withdrawn in response to Applicants' cancellation of claim 14. Furthermore, the incorporation of part of the limitation of cancelled claim 14 into claim 10 remedies the problem since there is no recitation of "prevention", but rather the phrase has been amended to recite "reduces or inhibits."

Rejections Maintained

Declaration under 37 CFR 1.132

The declaration under 37 CFR 1.132 filed 24 November 2009 is insufficient to overcome the rejection of claims 10-13, 15, 16 and 30 based upon the rejection under 35 U.S.C. 103(a) over Kirker-Head and further in view of Wikesjö 2003, Tsuboi et al., Kurihara et al. and Harada et al., (all references are of record) as set forth in the last Office action for the following reasons. Because the arguments and evidence set forth in Applicants' declaration are the same as those set forth in Applicants' remarks, the Response to Arguments will address both sets of arguments.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The rejection of claims 10-13, 15, 16 and 30 under 35 U.S.C. 103(a) as being unpatentable over Kirker-Head and further in view of Wikesjö 2003 (J Periodontal. May

2003; 74: 635-647—hereafter "Wikesjö 2003), Tsuboi et al. (J Dent Res, 2001; 80(3): 881-886—of record), Kurihara et al. (J Periodontol, 2003 74: 76-84—of record) and Harada et al., (Arch Histol Cytol. 2003; 66: 183-194—of record) is maintained for reasons of record and the following. The amended claims are drawn to a periodontal transplant comprising a biodegradable protein material and a neurotophic factor selected from the group consisting of brain-derived neurotrophic factor (BDNF), nerve growth factor (NGF), neurotrophin-3 (NT-3) or neurotrophin-4/5 (NT-4/5), wherein said transplant reduces or inhibits the apical invasion of gingival epithelium along the dental root surface, regenerates the periodontal ligament, the alveolar bone, the dental pulp, repairs dentin in the pulp cavity and wherein the therapeutically effective amount of BDNF, NGF, NT-3 or NT-4/5 is in the range of 1×10^{-12} to 1×10^{-3} g per tooth or defect of furcation.

Note that part of the limitations of cancelled claim 14 is now incorporated into claim 10. Claim 14 was not originally rejected under 35 U.S.C. 103(a), because it was drawn to "prevention" and therefore was not enabled (35 U.S.C. 112, first paragraph). However, Applicants' amendment has remedied the enablement issue in the incorporation of cancelled claim 14 into claim 10, since there is no longer any recitation of "prevention", but rather the phrase has been amended to recite "reduces or inhibits." For this reason, Applicants' amendment now qualifies this limitation for consideration under 35 U.S.C. 103(a).

Note also that the Applicants have amended the claims to delete "absorbent material" with "biodegradable protein material," thus the teachings of Wikesjö 2003, who

taught an absorbent material, is no longer crucial to the rejection. Nevertheless, Wikesjö 2003 do illustrate that in spite of some ankylosis and root resorption with the absorbent implant (polyglycolic acid-trimethylene carbonate membrane or PGA-TMC), that their implant resulted in "substantial bone regeneration encompassing approximately 70% of the defect height…the newly formed bone defined a periodontal ligament space," as well as new cementum about 40% (see p. 639, right column, last 2 paragraphs). Further, Wikesjö 2003 teach that the carriers have to be designed properly to compensate for "soft tissue compressive forces [that] may limit the space for bone formation." (See p. 636, right column). Finally, it is noted in greater detail below that it was known in the art that ankylosis and root resorption are both side effects of guided tissue regeneration or GTR.

Response to Arguments

Applicants argue at p. 8, 3rd paragraph of their Remarks and at p. 2, 2nd paragraph of their Declaration that the Kirker-Head references only discloses the effects of BMP-2 on skeletal tissue formation, not on periodontal tissue.

This argument has been fully considered but is not found persuasive. Kirker-Head also teaches periodontal effects at p. 77 (section 2.4.5.); the fact that it discloses an effect on skeletal tissue as well as periodontal tissue dose not undermine its teachings with regard to periodontal tissue. Further, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986):

The rejection was based upon a combination of references. For instance, Wikesjö 2003 teach at p. 639, right column, last 2 paragraphs that their implant resulted in "substantial bone regeneration encompassing approximately 70% of the defect height…the newly formed bone defined a periodontal ligament space," as well as new cementum about 40%. Furthermore, the teachings of Tsuboi et al., Kurihara et al. and Harada et al. demonstrate that BDNF was known in the art as a specific trophic factor for periodontal cells and tissues. For instance, Kurihara suggests that the neurotrophins "secreted from cells in periodontal tissue [i.e., BDNF] may play important roles in survival and differentiation of neurons during inflammation and wound healing in periodontal tissue and in the innervation of periodontal tissue after regenerative treatment and tooth replant or transplant treatment." (See p. 81, left column, penultimate paragraph).

Applicants argue at p. 8, 4th paragraph of their Remarks and p. 2, 3rd paragraph through p. 4, 1st paragraph of their Declaration that Wikesjö reference does not teach successful periodontal tissue regeneration because of significant ankylosis and root resorption and that one of skill in the art would understand periodontal tissue regeneration as excluding ankylosis.

This argument has been fully considered but is not found persuasive. Note that Applicants present only argument, without any evidence that one of skill in the art would understand periodontal tissue regeneration as excluding ankylosis. Blomlöf and Lindskog (J Periodontol. 1998; 69: 392-5) teach that "root surface resorption, ankylosis and alveolar bone resorption are not uncommon sequelae to periodontal healing in both animal and human trials…" (See abstract, p. 392, left column; citations omitted by Examiner). Blomlöf and Lindskog further teach at p. 392, left column through right

column that the process of re-establishing a cervical protective barrier is "interfered with by regenerative periodontal procedures such as guided tissue regeneration (GTR)." Some of the possible causes are discussed including, "when marginal gingival epithelium is prevented from forming a protective cervical cell layer in an angular defect." (See p. 392, right column). Further, at p. 394, right column, last paragraph, "In the present case report, the normal protective mechanisms against root resorption (marginal epithelium, cementum, etc.) have been interfered with in order to favor in-growth of periodontal connective tissue to reform periodontal attachment...there is a risk that the cervical root surface under a GTR barrier may then become subject to progressive resorption." In short, Blomlöf and Lindskog teach that ankylosis is a common side effect of GTR, and presumably one of ordinary skill in the art would be aware of this. Further, Wikesjö 2003 do teach at p. 639, right column, last 2 paragraphs that their implant resulted in "substantial bone regeneration encompassing approximately 70% of the defect height...the newly formed bone defined a periodontal ligament space," as well as new cementum about 40%, thus their implant is operative. Even if it were not so, see MPEP 2121 [R-3] II:

> "Even if a reference discloses an inoperative device, it is prior art for all that it teaches." Beckman Instruments v. LKB Produkter AB, 892 F.2d 1547, 1551, 13 USPQ2d 1301, 1304 (Fed. Cir. 1989). Therefore, "a non-enabling reference may qualify as prior art for the purpose of determining obviousness under 35 U.S.C. 103." Symbol Techs. Inc. v. Opticon Inc., 935 F.2d 1569, 1578, 19 USPQ2d 1241, 1247 (Fed. Cir. 1991).

In the instant case, even though Wikesjö 2003 reports known side effects associated with GTR, their device still resulted in regeneration, and is therefore, still operative. As noted in the MPEP, even if it were not so, it would be instructive to one of ordinary skill

in the art in designing implants for GTR and what to expect in using an absorbent material. Furthermore, it is noted that the Kirker-Head teaches a collagen sponge equivalent within the art to the Teruplug® of the instant specification working examples. Applicants have amended the claims to delete "an absorbent material" and replaced it with "a biodegradable protein material," which the collagen sponge taught in the Kirker-Head reference represents. Further, Applicants have focused upon Wikesjö 2003 because of the teaching of this common side effect, but it is noted that Kirker-Head does not teach ankylosis. Finally, it is noted that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references.

Applicants argue at p. 8, last paragraph that no definitive examples showing the criticality of BDNF or other neurotrophic factors is shown, thus there would be no expectation of success associated with producing a periodontal transplant that would regenerate normal periodontal tissues comprising both hard and soft tissues.

This argument has been fully considered but is not found persuasive. As noted in the previous Office action, the teachings of Tsuboi et al., Kurihara et al., and Harada et al., demonstrate that BDNF was known in the art as a specific trophic factor for periodontal cells and tissues. In addition to teaching expression of neurotrophins in mouse periodontal ligament (MPL) cells, Tsuboi teach that BDNF induced proliferation of MPLs (Tsuboi Figure 3). Tsuboi et al. also demonstrate that periodontal ligament cells (i.e., soft tissue) contain BDNF. Tsuboi conclude that "the expression of neurotrophins and TRK receptors in periodontal ligament cells, which are among the targets of trigeminal neurons, suggests the maintenance or recovery of function in the periodontal ligament cells and neurons in tissue regeneration." (See p. 885, left column,

last paragraph). Kurihara indicate that BDNF regenerates periodontal tissue (see abstract; p. 82, right column, last paragraph) and that BDNF up-regulated DNA synthesis in human periodontal ligament cells (p. 81, right column, last full paragraph). Kurihara suggests that the neurotrophins "secreted from cells in periodontal tissue [i.e., BDNF] may play important roles in survival and differentiation of neurons during inflammation and wound healing in periodontal tissue and in the innervation of periodontal tissue after regenerative treatment and tooth replant or transplant treatment." (See p. 81, left column, penultimate paragraph). Harada teaches that BDNF regenerates periodontal nerves (see whole document, for example, p. 192, penultimate paragraph). The combined teachings of Tsuboi, Kurihara and Harada, contrary to Applicants' assertions, suggest strongly that neurotrophins and their receptors are expressed during tooth development and regeneration, and that they play a role in periodontal disease and periodontal tissue regeneration. Upon reading the combined teachings of Tsuboi et al., Kurihara et al., and Harada et al., one of ordinary skill in the art would come to the conclusion that BDNF is an important factor in periodontal tissue regeneration.

Applicants argue at p. 3, last three paragraphs through p. 4, 1st paragraph of their Declaration that contrary to the prior art, the Inventors:

a) Obtained in vitro data show that BDNF enhances generation of collagen in soft tissues
b) Obtained in vivo data that alveolar bone as well as cementum and periodontal ligament were regenerated without the occurrence of ankylosis.
c) Prior art references are silent with respect to the effect of BDNF on the growth of gingival epithelium cells

These arguments have been fully considered but are not found persuasive.

Regarding point a, the combined teachings of BDNF in the prior art references is

strongly suggestive that BDNF is an important factor in periodontal tissue regeneration. Regarding point b), the specification does not mention ankylosis or the prevention thereof. Regarding point c), the closest mention of this in the specification occurs at paragraph [0053] of the publication, which describes bone defect at furcation and packed with a collagen sponge (Teruplug®) transplant containing BDNF. The description of FIG. 10 "is a partial enlarged view (x200) of the area right under the furcation shown in FIG. 9B; in that area and in almost all parts of the exposed dental root surface, cementum had been regenerated with collagen fibers embedded therein and there was no invasion of epithelium." It is noted that the Kirker-Head reference does not mention ankylosis as a side effect of GTR. Further, the Kirker-Head reference teaches a collagen sponge equivalent within the art to the Teruplug® of the instant specification working examples. Applicants have amended the claims to delete "an absorbent material" and replaced it with "a biodegradable protein material," which is one in the same with the collagen sponge taught in the Kirker-Head reference.

As noted in the prior Office action, the Kirker-Head reference teaches periodontal transplants comprising a periodontically acceptable scaffold (collagen sponge) material and neurotrophic factor. The collagen sponge as taught by this reference is equivalent within the art to the Teruplug® embodiment in the working examples of the specification at p. 43 of the specification. The Kirker-Head reference teaches sponges imbued with BMPs enhance osseointegration and strengthen bone as well as regenerate periodontal tissues. It was known in the art that BDNF is a neurotrophic factor important in periodontal disease. For instance, with regard to BDNF, Kurihara et al., like the instant

specification, report that neurotrophins are expressed in periodontal ligament cells. Given that BDNF is one among a finite list of factors that would likely have success in treatment of periodontal disease, the person of ordinary skill in the art has good reason to pursue the known options within his or her technical grasp, i.e., it would be obvious to try to make a periodontal transplant containing a neurotrophic factor selected from the group consisting of BDNF.

Furthermore, the claims are drawn to a product, and not a method, and the biodegradable protein material that is a collagen sponge was well known in the art as a periodontal implant. See MPEP § 2112.02: However, when the claim recites using an old composition or structure and the "use" is directed to a result or property of that composition or structure, then the claim is anticipated. In re May, 574 F.2d 1082,1090, 197 USPQ 601, 607 (CCPA 1978). The superior properties of the collagen sponge as reported by Applicants are intrinsic to it. See also In re Papesch, 315 F.2d 381, 391, 137 USPQ 43, 51 (CCPA 1963): "[f]rom the standpoint of patent law, a compound and all its properties are inseparable." Finally, see also MPEP 2112 [R-3]:

> The express, implicit, and inherent disclosures of a prior art reference may be relied upon in the rejection of claims under 35 U.S.C. 102 or 103. "The inherent teaching of a prior art reference, a question of fact, arises both in the context of anticipation and obviousness." In re Napier, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995) (affirmed a 35 U.S.C. 103 rejection based in part on inherent disclosure in one of the references). See also In re Grasselli, 713 F.2d 731, 739, 218 USPQ 769, 775 (Fed. Cir. 1983).

There is no requirement that a person of ordinary skill in the art would have recognized the inherent disclosure at the time of invention, but only that the subject matter is in fact inherent in the prior art reference. Schering Corp. v. Geneva Pharm.

Inc., 339 F.3d 1373, 1377, 67 USPQ2d 1664, 1668 (Fed. Cir. 2003) (rejecting the contention that inherent anticipation requires recognition by a person of ordinary skill in the art before the critical date and allowing expert testimony with respect to post-critical date clinical trials to show inherency) (MPEP 2112).

Applicants provide evidence at p. 4, 2nd and 3rd paragraphs that when a PLGA carrier was used, periodontal tissue regeneration was not observed, presumably to undermine the teachings of Wikesjö 2003.

As noted above, Wikesjö 2003 taught a carrier containing an absorbent material, however, the claims have been amended to recite a "biodegradable protein material," so focusing upon Wikesjö 2003 to undermine the rejection as a whole is not applicable. Wikesjö 2003 is still useful for all that it teaches, namely that in spite of some ankylosis and root resorption, that their implant resulted in "substantial bone regeneration encompassing approximately 70% of the defect height...the newly formed bone defined a periodontal ligament space," as well as new cementum about 40% (see p. 639, right column, last 2 paragraphs). Nevertheless, Kirker-Head teaches the collagen sponge as taught by this reference is equivalent within the art to the Teruplug® embodiment in the working examples of the specification at p. 43 of the specification. There are a limited number of possible biodegradable carriers, thus it would not cost one of skill in the art an unreasonable amount of effort to determine that the collagen sponge taught in the Kirker-Head reference was an appropriate carrier. Further, paragraph [0112] of the publication of Applicants' specification teaches that PLGA is a more preferred embodiment, thus Applicants' evidence also undermines the teachings in the specification:

> The material to be combined with the neurotrophic factor in the transplant of the present invention may be any material that causes no damage to the living body and can maintain the neurotrophic factor at the site to which it has been administered; preferred examples are a porous sheet and sponge. More preferred are biodegradable protein materials (collagen, gelatin, albumin, and platelet-rich plasma (PRP)) and tissue absorbing materials (polyglycolic acid (PGA), polylactic acid (PLA), ***poly(lactic acid-co-glycolic acid) (PLGA)***. (Emphasis added by Examiner).

Finally, Wikesjö 2003 teaches a bioresorbable, space-providing polyglycolic acid-trimethylene carbonate membrane (PGA-TMC) that was combined with BMP-2 (see p. 637, left column, 2nd paragraph through right column, 1st paragraph), thus the carrier is not the same composition as PLGA.

In view of the foregoing, when all of the evidence is considered, the totality of the rebuttal evidence of nonobviousness fails to outweigh the evidence of obviousness.

Conclusion

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Borgeest whose telephone number is (571)272-4482. The examiner can normally be reached on 9:00am - 3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Stucker can be reached on 571-272-0911. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Christina Borgeest

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Primary Examiner, Art Unit 1647